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ABSTRACT OF THE DISCLOSURE

A rotational electric machine in which a rotor having different-polarity field magnets arranged alternately in a rotational direction is divided axially into two rotor portions so that the axial position of one of the two rotor portions is changed relative to that of the other in accordance with a direction of torque of the rotor or the phase of synthesized magnetic poles of the field magnets is changed relative to that of magnetic poles of the other rotor portion in accordance with a direction of torque of the rotor, and a vehicle loaded with the rotational electric machine.